Times are very exciting here at the Bob L. Herd Department of Petroleum Engineering. The new building is coming along and we expect to start spring classes there in January. Everything about the building is state-of-the-art and we have made more modifications since the initial design to enhance the teaching and research in our department. I have personally traveled to several schools and have taken away the best aspects of their building designs. In addition, I attended an SPE forum in Idaho last month that included petroleum departments all over the world. We met to collaborate on methods to help cope with the ever-rising number of students and lack of professors to teach them. Possible solutions discussed were having professors teach remotely from one university to another, professors of practice from industry teach remotely via telecommunications, and to develop repositories for design projects, homework and exams. Highlights of the forum will be presented in the SPE’s JPT. At Texas Tech, we have approximately 1000 students as foundational PE students or in our program with only seven full-time professors and one adjunct professor. I have been on a mission to find both industry professors of practice and tenure track, Ph.D. candidates. To qualify for professor of practice, one needs a bachelor’s degree in the sciences and substantial experience in the oil field. To date, I have to tell you, it has been rather difficult finding these people.

Our new curriculum is in full swing. Change can be painful, but in the end we are going to turn out a better petroleum engineer who will be ready to hit the ground running in our industry. The new sophomore class will make our students competitive with other universities that give their students more skills prior to the sophomore-junior summer internship. That will be the cornerstone class that all future classes will be referenced. In addition, students will be able to choose a specialty in their senior year, such as drilling, production, or reservoir engineering which they can hone their skills to a level never achieved before. The new design classes will span the entire senior year to take advantage of the multidisciplinary environment to design oil and/or gas fields from exploration to abandonment. These multiple disciplinary teams will emulate the environment students will work in once leaving Texas Tech. They will learn to work together to optimize production and development of oil fields throughout the world, offshore and onshore, conventional and unconventional reservoirs. Special thanks go to Dr. Lloyd Heinze who helped me implement this concept.

Another exciting project in our department is the development of an East campus built around the old test well, Red Raider #1. The first step will be to build a metal high bay building to house both hands on training for undergraduates and large-scale research projects for our faculty and graduate students. In addition to the metal building, we will build a caliche pad to display various pieces of facilities such as tank batteries, metering facilities and other all field processes. Ultimately, our goal is to have functional facilities that undergraduates can operate. I am a firm believer that students need to visualize, both in full-scale and lab scale, all field operations to grasp what we’re trying to teach them. In addition to visualization for undergraduates, large full-scale testing can be carried out such as horizontal well cementing. Additionally, we will get Red Raider #1 back into full operational mode enabling us to investigate artificial lift problems we are experiencing here in the Permian Basin and other similar resource/unconventional plays. Speaking of research, a lot of credit goes to Dr. Mohamed Soliman for the increase in our graduate technical paper production, plus an expanding research program as you will read later in the newsletter.

I hope to see everyone at the Friday, October 11 Petroleum Engineering Campaign Victory Celebration, during Homecoming weekend, at our new building’s parking lot from 5:30 to 7:00 p.m. Enjoy food and beverages along with tours of the new building.

The fall has started with a new football coach with major victories, a petroleum building that now has taken shape, which we all are going to be SO proud of, and a record-breaking student enrollment and the largest class of petroleum engineers that Texas Tech has ever had. With that comes new challenges, but I look forward to each day and the rewards it brings.

Marshall C. Watson, Ph.D., PE.
Roy Butler Chair and Department Chair
The Texas Tech University chapter of the Society of Petroleum Engineers has earned the Gold Standard Award for 2013, in recognition of its exceptional programs in technology dissemination, membership development, community and social outreach, and more.

This is the second year in a row that the chapter has been recognized with the Gold Standard Award by SPE.

SPE members go to The Haven Animal Care Shelter in Lubbock once each semester to provide assistance to this non-profit, volunteer only, no-kill shelter. The students have repaired kennels and fencing, cleaned facilities, walked dogs, and provided help in many other ways. The students benefit from interacting with the animals and enjoy the much-needed support that this provides to the community.

Twice a year, the organization converges on two miles of Interstate 27 North of the Lubbock airport as a part of the Texas Department of Transportation’s Adopt-A-Highway Program, cleaning up trash and litter. As the students clean up the road, it is a great time to connect with other students, meet new members, and share experiences from classes, labs, and summer internships.

In the spirit of our new curriculum stressing visualization, our East Campus will enable us to show students full-scale equipment and operations in a safe and controlled environment. Our goal is to build a tank battery and well to demonstrate facility functionality. In addition, we are trying to get a drilling rig that can operate to enable students to gain knowledge of procedure.

In addition to undergraduate teaching, we plan to carry out research at East Campus that requires large-scale models, such as cementing horizontal wellbores, optimizing production horizontal producers, etc. The East campus is located 15 minutes from our building on the main Texas Tech campus. We would like to eventually develop a shuttle service to and from the site and hire a technician to oversee the East Campus.

New SPWLA Student Chapter Formed at Texas Tech

Students interested in formation evaluation in the Bob L. Herd Department of Petroleum Engineering have taken the initiative to form a student chapter of the Society of Petrophysicists and Well Log Analysts (SPWLA).

Aman Arora has been elected as chapter president and is actively recruiting members and looking for funding from benefactors to help subsidize student dues.
Heinze Works with Faculty in Mozambique, Prepares SPE JPT Survey Data

Dr. Lloyd Heinze, professor of petroleum engineering, traveled to Mozambique, Africa in the summer of 2013 to work with faculty at the Universidade Eduardo Mondlane to develop a new master of science in petroleum engineering degree program. He taught twenty-two students in Maputo and is now working to develop two drilling courses for distance delivery from Texas Tech.

While he was there, he set up a rheology lab. Heinze also had the opportunity to go on a photo safari at Kruger Park in South Africa. “It was a unique seeing the wild animals in their native habitat,” says Heinze.

Heinze sent out his annual petroleum engineering enrollment survey in September and will be reporting the results at the SPE ATC&E in New Orleans. This survey was recently published in the SPE JPT as a way of documenting the impact of university graduates on the industry and the number of bachelor of science students entering industry.

Sheng Wins SPE Award, Fulbright Specialist Grant

Dr. James Sheng, an associate professor of petroleum engineering, received the 2013 SPE Regional Technical Award for Formation Evaluation in the Southwestern U.S. region. He derived an analytical flow equation of probe tests conducted in horizontal wells. He also derived equations to estimate vertical and horizontal permeabilities from probe tests in vertical and horizontal wells.

He also received a Fulbright U.S. Specialist Grant to help PetroVietnam University in Vietnam to establish their own petroleum program.

Bateman Travels to Argentina to Arrange Student and Faculty Exchanges

Richard Bateman, an instructor of petroleum engineering, met with administrators at the Instituto Tecnológico de Buenos Aires, while on a vacation trip to Argentina.

Visiting with the institute’s director, Bateman reports the two universities are interested in an exchange program that would allow both students and faculty to participate. Arrangements will continue to be made in the future, but Bateman hopes “to see students learning both the Tango and Archie’s Equation through this arrangement.”

Patents Offer Opportunities for Commercialization, New Applications

Three patents have been filed in the fracturing area recently by faculty members in the department. Two of these patents introduced a new and practical way to enhance fracturing complexity when fracturing shale formations, and the department is in the process of commercializing the process.

Another fracturing patent for analysis of real-time fracturing data to quickly interpret fracturing data has been filed. The process has been applied to several wells and it promises to change the real-time interpretation process.

Application to FracPac cases showed that using the new technique may determine the various phases of fracture propagation quicker and more accurately than may be achieved otherwise. Application to shale formations indicated when the hydraulic fracture intersected natural fractures.

Over the last three years, the Bob L. Herd Department of Petroleum Engineering has seen a significant increase in the number of papers written and published by faculty members and graduate students.

This change is the result of increased emphasis in the Ph.D. program on publications and the requirement that original research with publishable work is conducted by both Ph.D. and master of science students.

Several students will earn Ph.D.s in the next three semesters, and these students have written numerous papers in the areas of fracturing, numerical simulation and optimization, and production from unconventional resources. In addition, several papers are planned for early 2014.
Alumni News

Denny Bullard - B.S.P.E., 1970

In November 2007, Denny Bullard was named vice president of Operations Services of Pioneer Natural Resources overseeing more than 1000 people. Bullard has responsibility for the operations of Pioneer Pumping Services, including cementing, coil tubing and fracturing, the 13th largest operation in the country. He also oversees Premier Silica, Pioneer’s industrial sand mining operations; Pioneer is one of only three E&P companies to own a sand mine. In addition, Bullard is responsible for the Health, Safety, Environmental Services and Operations Training departments. He currently serves on the Texas Tech University Industry Advisory Board for Petroleum Engineering, the Texas Tech University Dean’s Council, and is chairman of the Texas Tech University Academy of Petroleum Engineers. In 2012, he was recognized by the Texas Independent Producers and Royalty Owners Association as a “Top Producer” Engineer.

Toben Scott - B.S.P.E., 2000

After graduation, Toben Scott worked for Phillips Petroleum and several independents before forming AggieTech Investments with his business partner Mark Bales in 2004. After purchasing Permian Basin oil properties, he started Sweetwater Transfer Services and specialized in water transfer in the Barnett, Permian Basin, Fayetteville, Marcellus, Granite Wash, Haynesville, and Eagle Ford before selling in 2010. In August 2008, AggieTech entered the pumping unit service business with six employees and have since expanded to its current 140 employees which operate 17 field service trucks, two machine shops, and a full-service pumping unit business servicing the entire Permian Basin. In late 2011, AggieTech launched a salt water disposal service and has seven projects to date. He and his wife Misty have three potential Red Raiders in training, Khloe, Khelan, and Kensey.

David Wight - B.S.P.E., 1964

David Wight is currently serving on the Dean’s Council and is consulting in Anchorage, Alaska where he resides. Wight has had an illustrious career in the energy industry serving in many executive capacities, including chairman and president of BP Amoco Energy Company, CEO and president of Alyeska Pipeline Service Company. While at Texas Tech, Wight lettered in varsity swimming and was a member of the student council, Sigma Alpha Epsilon, Double “T” Association and was a Saddle Tramp. (At right) During the Texas Tech versus SMU football game, Wight was able to enjoy a Red Raider victory with his son Nicholas and daughter Isabella.

Keeping in Touch

The Texas Tech Bob L. Herd Department of Petroleum Engineering would like to know what is happening in your professional life. Visit the following website to update your information or let us know about your accomplishments: www.coe.ttu.edu/info